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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/609,690	07/05/2000	Handong Wu	252/110	4070

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EXAMINER	
GOLD, AVI M	

ART UNIT	PAPER NUMBER
2157	5

DATE MAILED: 03/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/609,690	WU ET AL.	
	Examiner	Art Unit	
	Avi Gold	2157	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 July 2000*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25 and 27-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-25 and 27-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 4.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This action is responsive to the application filed July 5, 2000. Claims 1-25 and 27-29 are pending. Claims 1-25 and 27-29 represent high performance packet processing using a general purpose processor.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 13 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Claim 13 recites the limitation "said at least one data processing policy in said policy action table" in lines 4 and 5. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-15, 19-25, and 27-29 are rejected under 35 U.S.C. 102(e) as being anticipated by Abraham et al., U.S. Patent No. 5,983,270.

Abraham teaches the invention as claimed including the monitoring, logging and blocking data packets transmitted via an intranetwork or internetwork (see abstract).

Regarding claim 1, an apparatus for processing data packets, comprising:

a first data processing unit adapted to filter incoming packets (col. 2, lines 31-60, Abraham discloses a filter engine);

an addressable memory unit in which a plurality of instruction sets for packet processing are stored (col. 2, lines 31-60; col. 7, Abraham discloses a set of rules and a rules and logging database);

a second data processing unit adapted to process incoming packets according to one of said plurality of instruction sets (col. 2, lines 31-60; col. 7, Abraham discloses a filter executive); and

a data bus connecting the addressable memory unit and the first and second data processing units. (col. 2, lines 31-60; col. 7, Abraham discloses a network connecting the units).

Regarding claim 2, the apparatus of claim 1, further comprising a policy condition table connected to said first data processing unit, said policy condition table having a plurality of rules stored therein (col. 2, lines 31-60; col. 7; col. 9, lines 43-65; Abraham discloses a set of rules in a database).

Regarding claim 3, the apparatus of claim 1, further comprising a policy action table connected to said data bus and said addressable memory unit, wherein said policy

action table stores at least one data processing policy (col. 2, lines 31-60; col. 7, Abraham discloses policies collected by a database).

Regarding claim 4, the apparatus of claim 3, wherein at least one of said policies comprises:

a first address pointer element for identifying the location in said addressable memory unit of one of said plurality of instruction sets (col. 7, Abraham discloses a GUI transmitting to a rules database), and

a second address pointer element for identifying the location in said addressable memory unit of a state block (col. 5, lines 46-67; col. 6, lines 1-4; Abraham discloses the system administrator having access to what type of services and information each user may have access to on the Internet).

Regarding claim 5, the apparatus of claim 3, wherein said first data processing unit assigns a thread to each said incoming packet, wherein said thread corresponds to one of said policies stored in said policy action table (col. 2, lines 31-60; col. 9, lines 43-65; Abraham discloses mapping information).

Regarding claim 6, the apparatus of claim 3, wherein said first data processing unit comprises logic for matching a first incoming packet to a stored first rule and for generating a first thread if the first incoming packet matches said first rule, said first thread identifying the location of one of said at least one data processing policies in said policy action table (col. 2, lines 31-60; col. 7; col. 9, lines 43-65).

Regarding claim 7, the apparatus of claim 6, wherein said second data processing unit is adapted to process the first incoming packet according to said data processing policy corresponding to said first thread (col. 2, lines 31-60; col. 7; col. 9, lines 43-65).

Regarding claim 8, the apparatus of claim 6, wherein said data processing policy comprises a first address pointer to a starting address of a first set of instructions and a second address pointer to a starting address of a state block stored in said addressable memory unit, said state block used by said first set of instructions for processing the first incoming packet (col. 5, lines 46-67; col. 6, lines 1-4; col. 7).

Regarding claim 9, the apparatus of claim 6, wherein said thread is assigned to said first incoming packet based on said first rule (col. 2, lines 31-60; col. 7; col. 9, lines 43-65).

Regarding claim 10, the apparatus of claim 6, wherein said first processing unit further comprises logic for matching a second incoming packet to a stored second rule and for generating a second thread if the second incoming packet matches the second rule, said second thread identifying the location of one of said at least one data processing policy in said policy action table (col. 2, lines 31-60; col. 7; col. 9, lines 43-65).

Regarding claim 11, the apparatus of claim 10, wherein said second data processing unit is adapted to process the second incoming packet according to said data processing policy corresponding to said second thread (col. 2, lines 31-60; col. 7; col. 9, lines 43-65).

Regarding claim 12, the apparatus of claim 10, wherein said second thread is assigned to said second incoming packet based on said second rule (col. 2, lines 31-60; col. 7; col. 9, lines 43-65).

Regarding claim 13, the apparatus of claim 1, wherein said first processing unit further comprises logic for matching a plurality of incoming packets to a stored corresponding plurality of rules and for generating a thread for each packet that matches one of said plurality of rules, each said thread identifying the location of one of said at least one data processing policy in said policy action table (col. 2, lines 31-60; col. 7; col. 9, lines 43-65).

Regarding claim 14, the apparatus of claim 13, wherein the second data processing unit is adapted to process each packet according to said data processing policy corresponding to said thread associated with said packet (col. 2, lines 31-60; col. 7; col. 9, lines 43-65).

Regarding claim 15, the apparatus of claim 13, further comprising a memory unit connected to said first data processing unit and to said second data processing unit, said memory unit adapted to temporarily store packets before processing by said second data processing unit (col. 2, lines 31-60; col. 7; col. 9, lines 43-65).

Regarding claim 19, a method for processing data packets, comprising:

receiving a first incoming packet (col. 9, lines 43-65, Abraham discloses inbound packets);

determining whether to admit the first incoming packet (col. 9, lines 43-65, Abraham discloses a filter engine that verifies packets);

assigning a first thread to the first incoming packet if said first incoming packet is admitted, wherein said first thread points to a stored policy (col. 9, lines 43-65, Abraham discloses mapping information and filter engine rules); and

processing the first incoming packet according to said stored policy (col. 9, lines 43-65, Abraham discloses the filtering of packets).

Regarding claim 20, the method of claim 19, wherein said stored policy comprises a first address pointer pointing to the location of a first set of instructions, and wherein said processing step utilizes said first set of instructions to process said first incoming packet (col. 7).

Regarding claim 21, the method of claim 20, wherein said stored policy further comprises a second address pointer pointing to the location of a state block, and wherein said processing step utilizes said state block to process the first incoming packet (col. 5, lines 46-67; col. 6, lines 1-4).

Regarding claim 22, the method of claim 19, further comprising the step of storing at least one policy in a policy action table (col. 2, lines 31-60; col. 7).

Regarding claim 23, the method of claim 22, further comprising the step of updating said policy action table (col. 17, lines 7-67; col. 18, lines 1-14; Abraham discloses adding a rule to the database).

Regarding claim 24, the method of claim 19, wherein said determining step further comprises searching a policy condition table for a rule corresponding to the contents of the first incoming packet (col. 2, lines 31-60; col. 7; col. 9, lines 43-65).

Regarding claim 25, the method of claim 19, further comprising the step of placing the first incoming packet in a processing queue after said assigning step and before said processing step (col. 9, lines 43-65).

Regarding claim 27, a method for processing data packets, comprising:

storing a plurality of policies in memory (col. 7, Abraham discloses policies stored in mass memory);

updating the policies in the memory for implementing policy changes in a data processing unit (col. 17, lines 7-67; col. 18, lines 1-14);

receiving incoming packets in the data processing unit (col. 9, lines 43-65);

looking up at least one corresponding policy in the memory utilizing the data processing unit (col. 9, lines 43-65); and

processing the incoming packets according to the at least one corresponding policy in the memory utilizing the data processing unit (col. 9, lines 43-65).

Regarding claim 28, a system for processing data packets, comprising:

memory for storing a plurality of policies (col. 7); and

logic for updating the policies in the memory for implementing policy changes in a data processing unit (col. 17, lines 7-67, col. 18, lines 1-14);

wherein the data processing unit is adapted for receiving incoming packets, looking up at least one corresponding policy in the memory, and processing the incoming packets according to the at least one corresponding policy in the memory (col. 9, lines 43-65).

Regarding claim 29, A system for processing data packets, comprising:

means for storing a plurality of policies (col. 7);

means for updating the policies for implementing policy changes (col. 17, lines 7-67, col. 18, lines 1-4);

means for receiving incoming packets (col. 9, lines 43-65);

means for looking up at least one corresponding policy (col. 9, lines 43-65); and

means for processing the incoming packets according to the at least one corresponding policy using a plurality of threads (col. 9, lines 43-65).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Abraham et al. further in view of Murakami et al., U.S. Patent No. 6,065,065.

Abraham teaches the invention substantially as claimed including the monitoring, logging and blocking data packets transmitted via an intranetwork or internetwork (see abstract).

As to claim 16, Abraham teaches the method of claim 1.

Abraham fails to teach the limitation further including the second data processing unit comprising a plurality of general purpose processors for executing instructions in parallel.

However, Murakami teaches a parallel computer including a file system for storing and processing a massive volume of data (see abstract). Murakami teaches the invention use of a parallel computer system (col. 1, lines 50-67; col. 2, lines 1-14).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Abraham in view of Murakami to use a plurality of general purpose processors for executing instructions in parallel. One would be motivated to do so because executing instructions in parallel will allow the unit to run more processes at once allowing for overall faster speeds.

8. Claims 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abraham and Murakami further in view of Scales, U.S. Patent No. 5,761,729.

Abraham teaches the invention substantially as claimed including the monitoring, logging and blocking data packets transmitted via an intranetwork or internetwork (see abstract). Murakami teaches the invention substantially as claimed including a parallel computer including a file system for storing and processing a massive volume of data (see abstract).

As to claim 17, Abraham and Murakami teach the method of claim 16.

Abraham and Murakami fail to teach the limitation further including at least one said general purpose processor comprising a complex instruction set computer processor.

However, Scales teaches a distributed computer system including a distributed shared memory (see abstract). Scales shows evidence of the use of a complex instruction set computer processor (col. 1, lines 63-67; col. 2, lines 1-7, 49-67; col. 3, lines 1-8, 41-63).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Abraham and Murakami in view of Scales to use a complex

instruction set computer processor. One would be motivated to do so because a complex instruction set processor can perform several low-level operations and can deal with packet complexity.

As to claim 18, Abraham and Murakami teach the method of claim 16.

Abraham and Murakami fail to teach the limitation further including at least one said general purpose processor comprising a reduced instruction set computer processor.

However, Scales teaches a distributed computer system including a distributed shared memory (see abstract). Scales shows evidence of the use of a reduced instruction set computer processor (col. 1, lines 63-67; col. 2, lines 1-7, 49-67; col. 3, lines 1-8, 41-63).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Abraham and Murakami in view of Scales to use a reduced instruction set computer processor. One would be motivated to do so because a reduced instruction set processor allows for rapid execution of a sequence of simple instructions.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Pat. No. 5,615,340 to Dai et al.

U.S. Pat. No. 6,647,418 to Maria et al.

U.S. Pat. No. 6,493,752 to Lee et al.

U.S. Pat. No. 6,253,321 to Nikander et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Avi Gold whose telephone number is 703-305-8762. The examiner can normally be reached on M-F 8:00-5:30 (1st Friday Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on 703-308-7562. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Avi Gold

Patent Examiner

Art Unit 2157

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